

Radiation Doses of Nuclear Plant Workers During and After Reactor Operation

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Occupational Radiation Exposure at Commercial Nuclear Power Reactors and Other Facilities 2018

Fifty-First Annual Report

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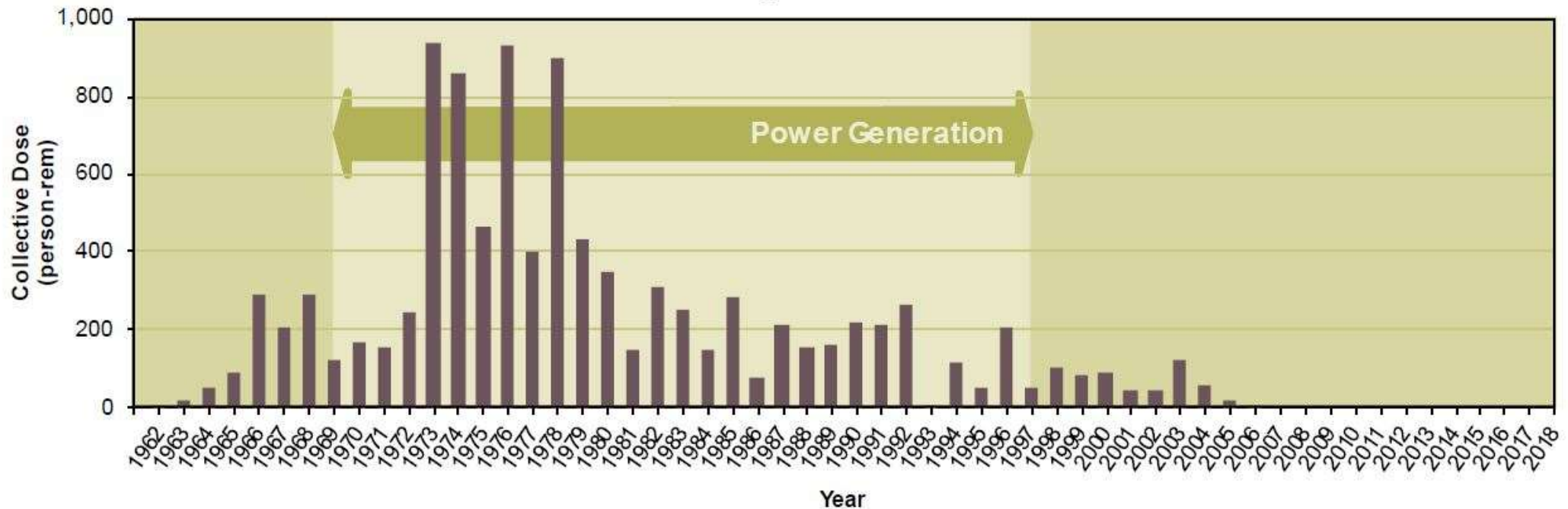
Office of Nuclear Regulatory Research

Nuclear plant owners submit annual reports to the NRC on radiation exposures to their workers. The NRC compiles the information and issues annual reports on collective occupational radiation exposures and trends.

Appendix E to this recent annual NRC report covers nuclear reactors that have been permanently shut down and is the source for the following charts and text.

Source: ML20087J424

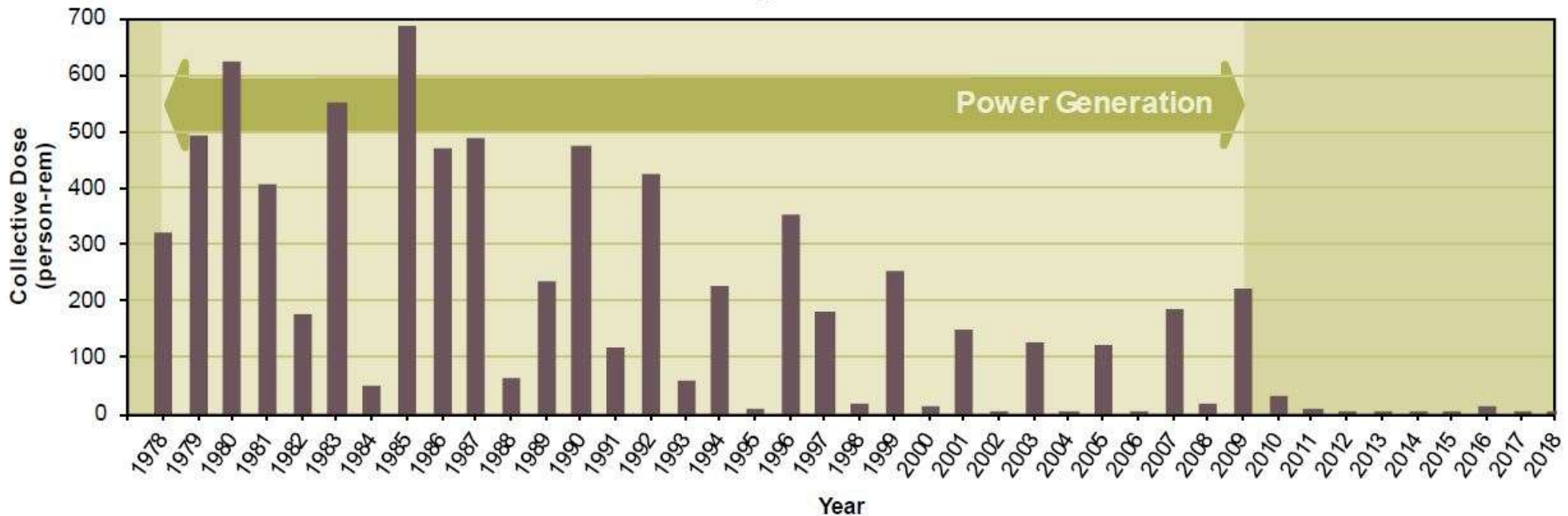
Big Rock Point



Big Rock Point located on Michigan's upper peninsular had one boiling water reactor that was permanently shut down on August 29, 1997.

The transfer of all spent fuel into onsite dry storage was completed by March 2003.

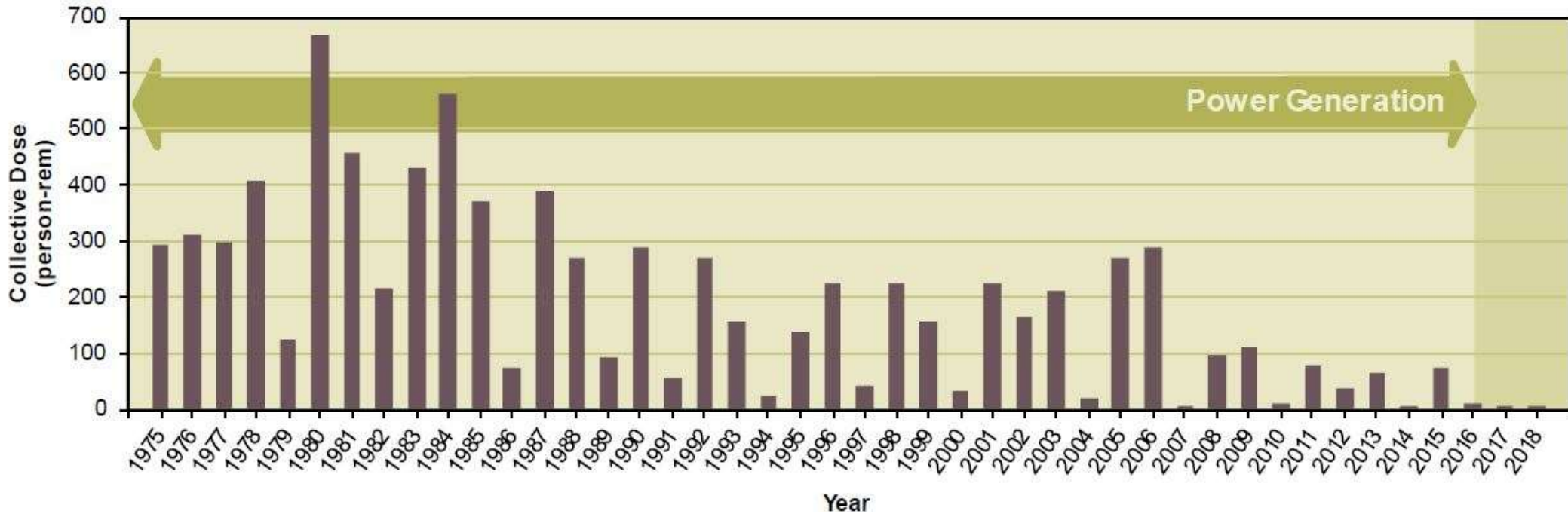
Crystal River 3



Crystal River Unit 3 located on Florida's west coast had one pressurized water reactor (Units 1 and 2 were fossil-fueled) that was shut down on September 26, 2009, for refueling. The company decided not to restart the reactor.

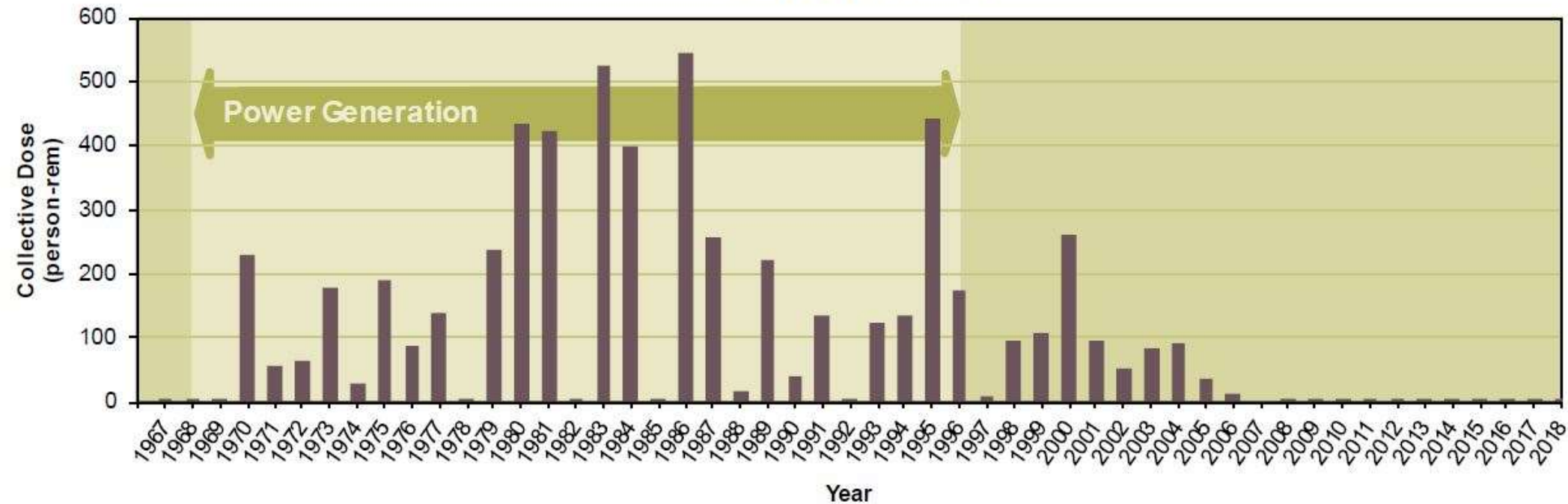
The transfer of all spent fuel into onsite dry storage was completed by January 2018.

Fort Calhoun



Fort Calhoun located on Nebraska's eastern border had one pressurized water reactor that was permanently shut down on October 24, 2016.

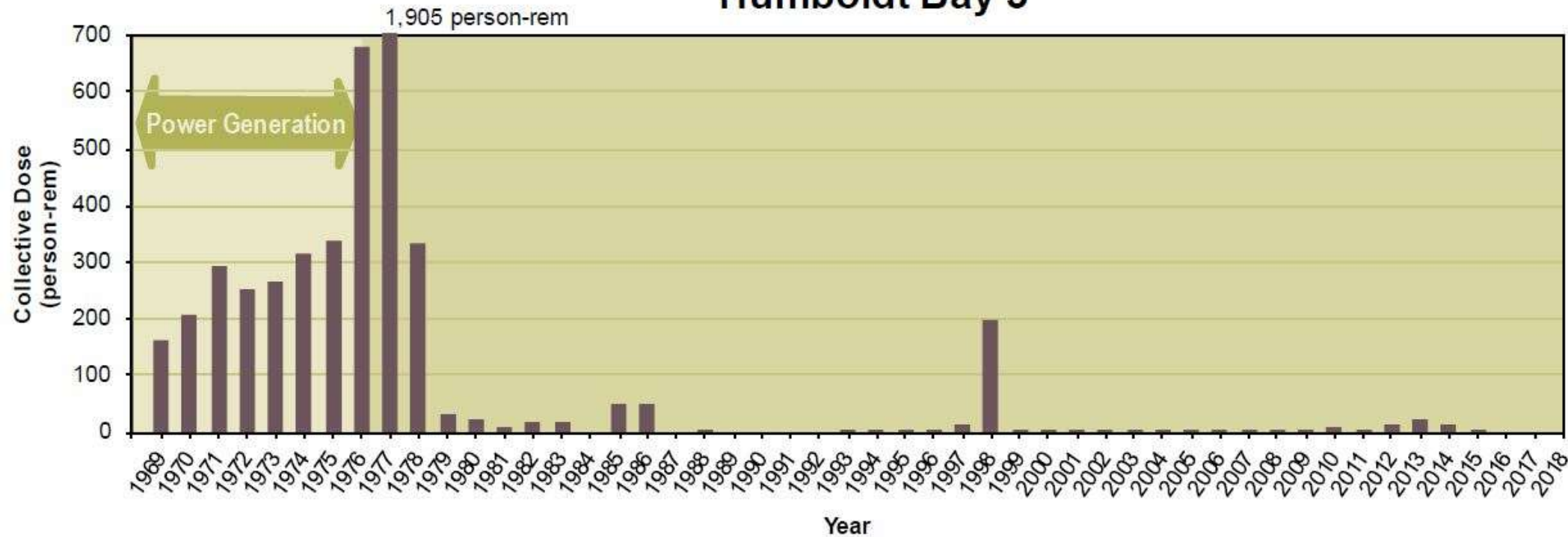
Haddam Neck



Haddam Neck (also known as Connecticut Yankee) located in middle Connecticut had one pressurized water reactor that was permanently shut down in 1996.

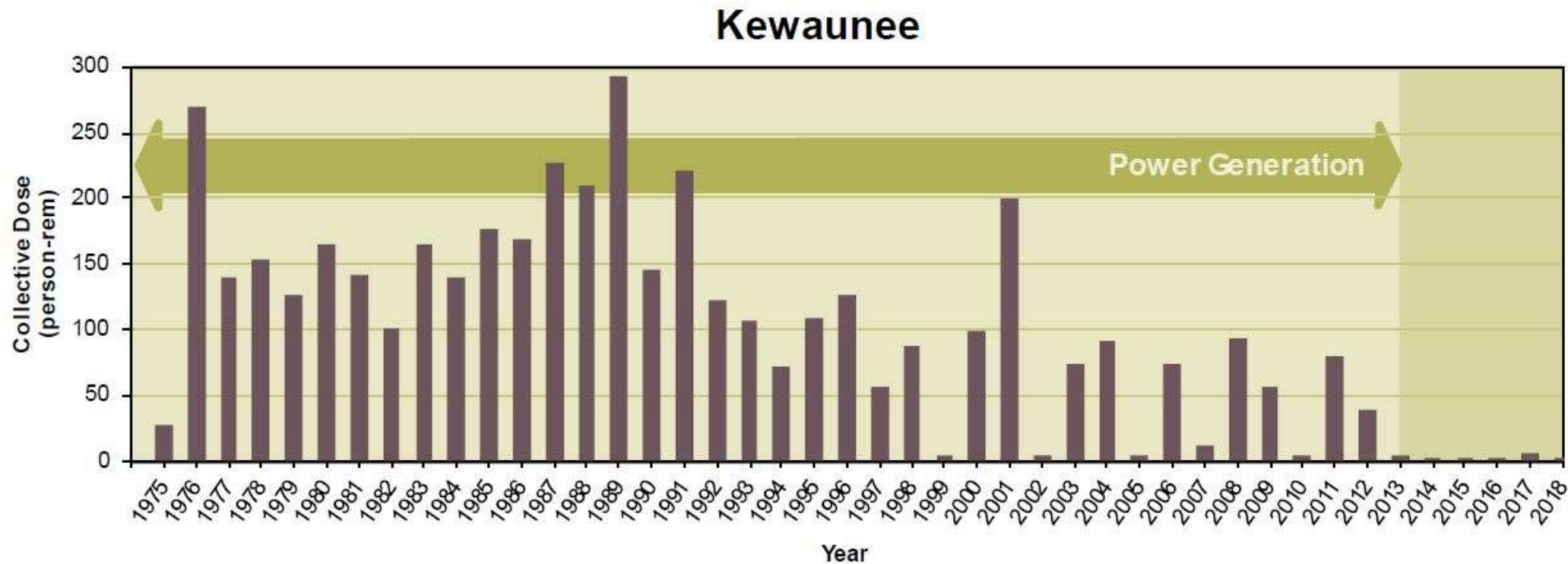
The transfer of all spent fuel into onsite dry storage was completed by March 30, 2005.

Humboldt Bay 3



Humboldt Bay Unit 3 located on the California coast had one boiling water reactor (Units 1 and 2 were fossil-fueled) that was shut down in July 1976. The company decided in 1983 not to restart the reactor due to the cost of NRC-mandated seismic and TMI upgrades.

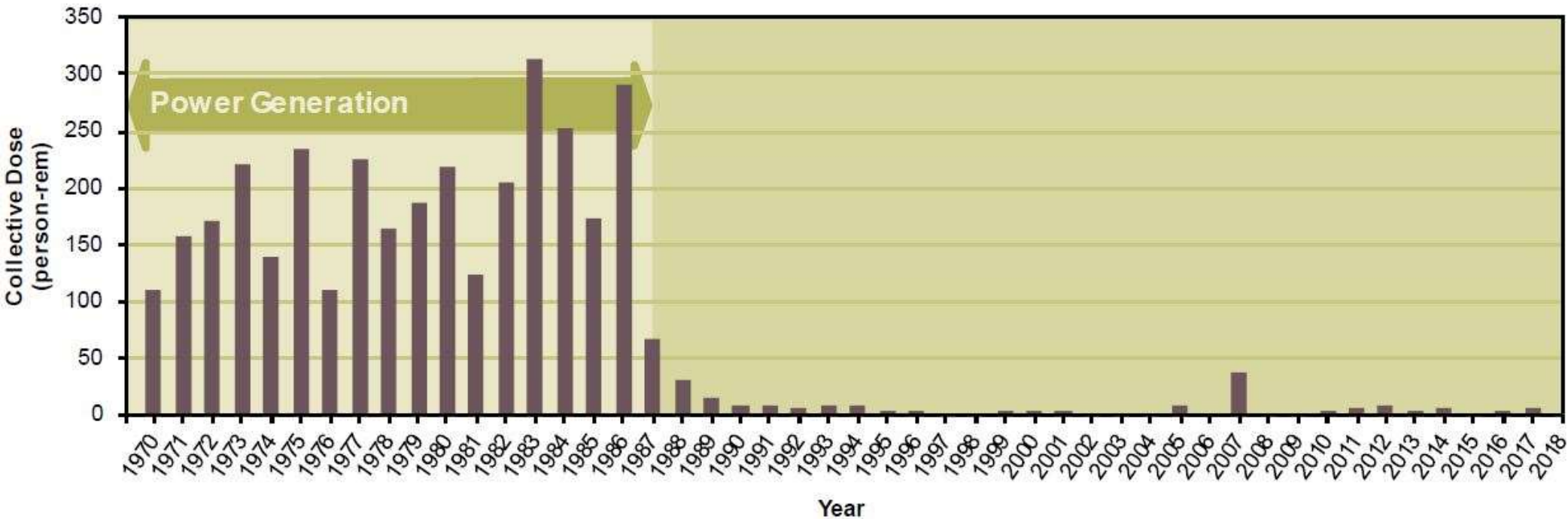
The transfer of all spent fuel into onsite dry storage was completed in 2008.



Kewaunee located on Wisconsin's eastern border had one pressurized water reactor that was permanently shut down in May 2013.

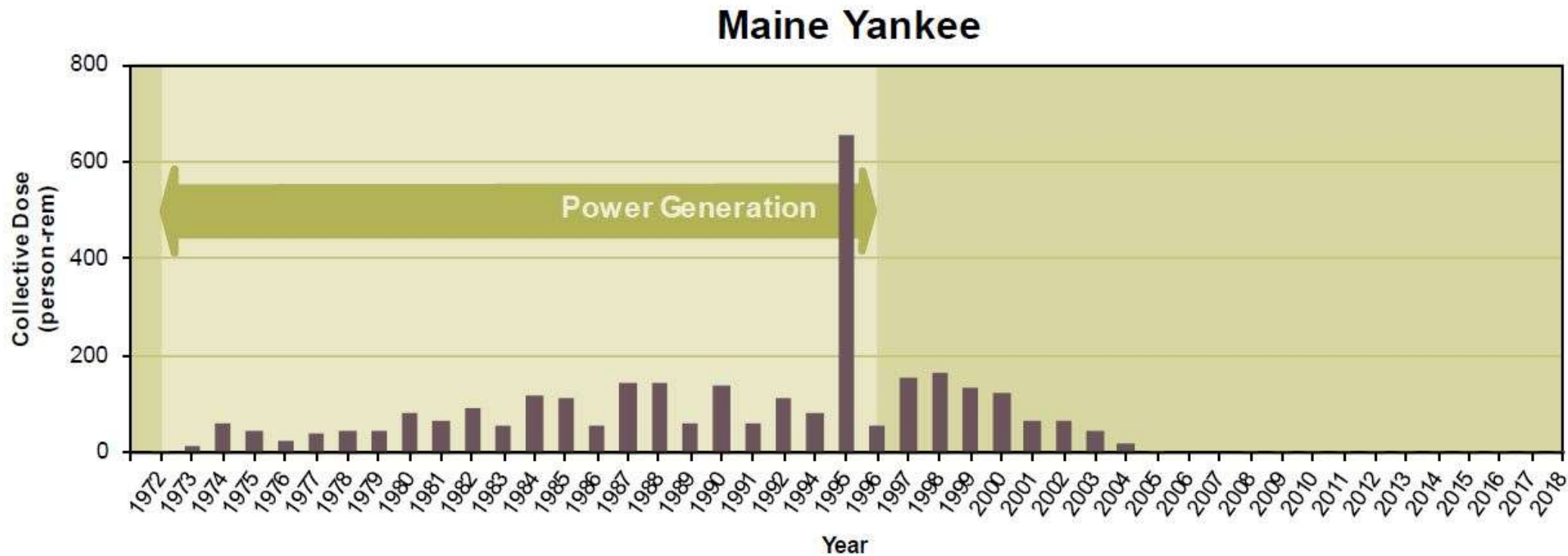
The transfer of all spent fuel into onsite dry storage was completed in June 2017.

La Crosse



La Crosse located in Wisconsin had one boiling water reactor that was shut down on April 30, 1987.

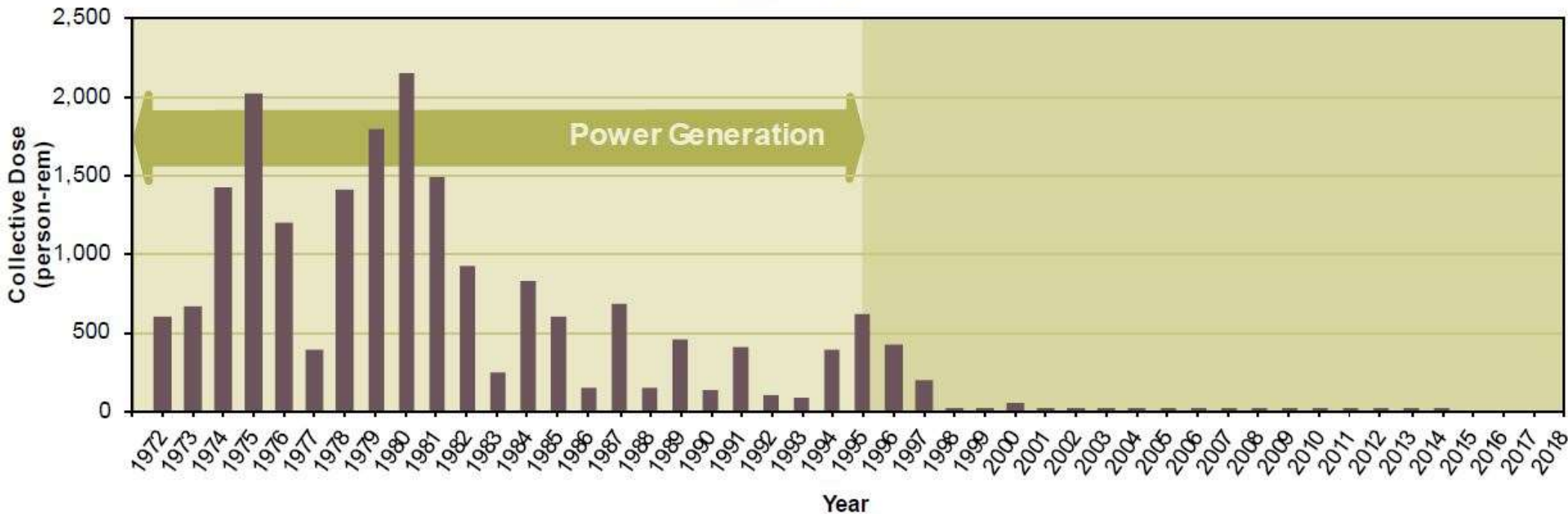
The transfer of all spent fuel into onsite dry storage was completed by September 19, 2012.



Maine Yankee located on Maine's coast had one pressurized water reactor that was permanently shut down on December 6, 1996.

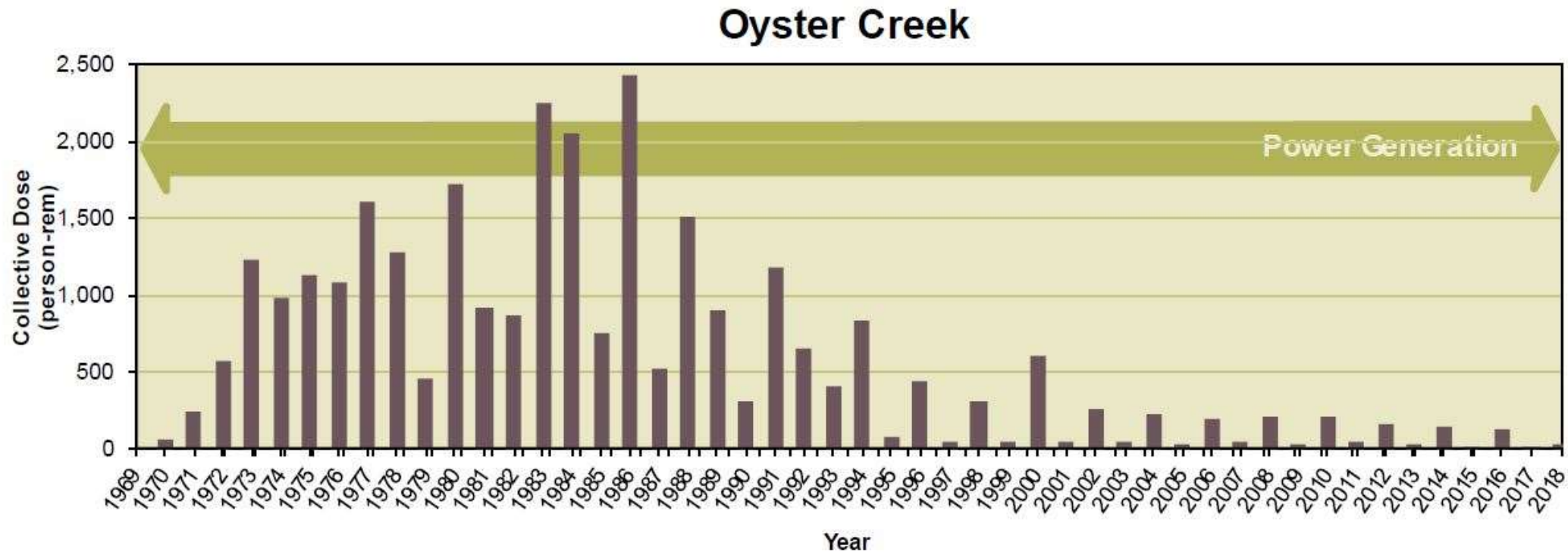
The transfer of all spent fuel into onsite dry storage was completed in February 2004.

Millstone 1



Millstone Unit 1 located on Connecticut's coast had one boiling water reactor that was shut down on November 4, 1995, for refueling. The company decided not to restart the reactor for economic reasons.

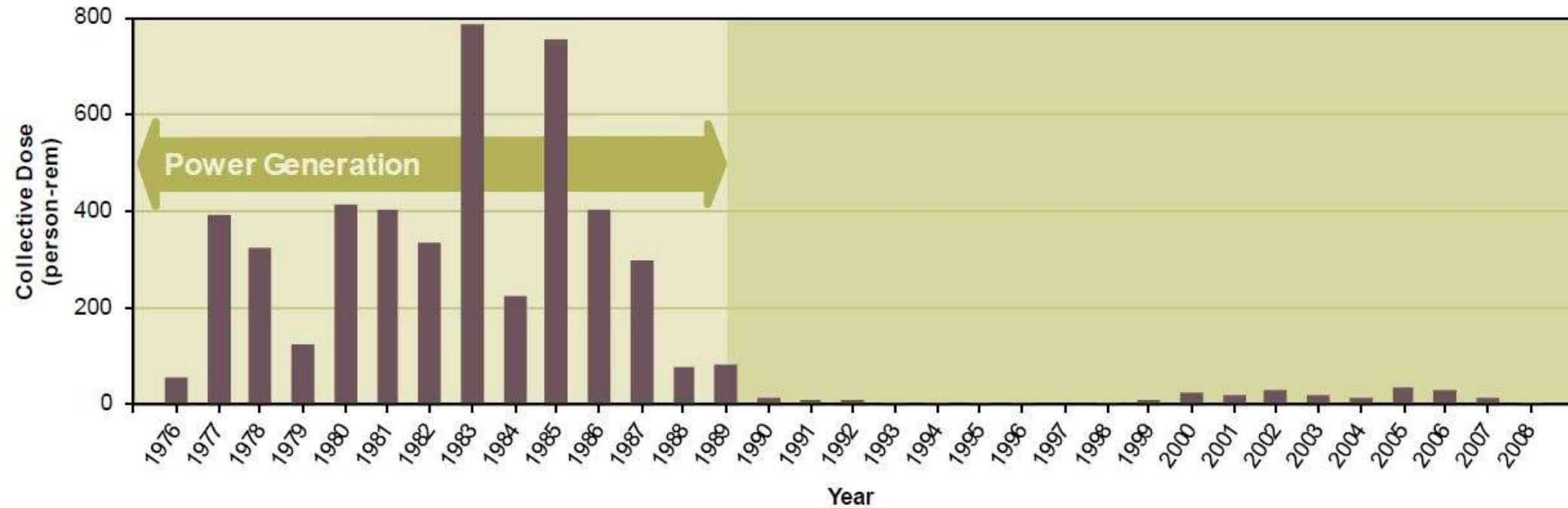
In 2007, the company decided to keep spent fuel in the spent fuel pool until 2048.



Oyster Creek located on New Jersey's eastern coast had one boiling water reactor that was shut down on September 17, 2018.

The transfer of all spent fuel into onsite dry storage is planned to be completed by the end of 2024.

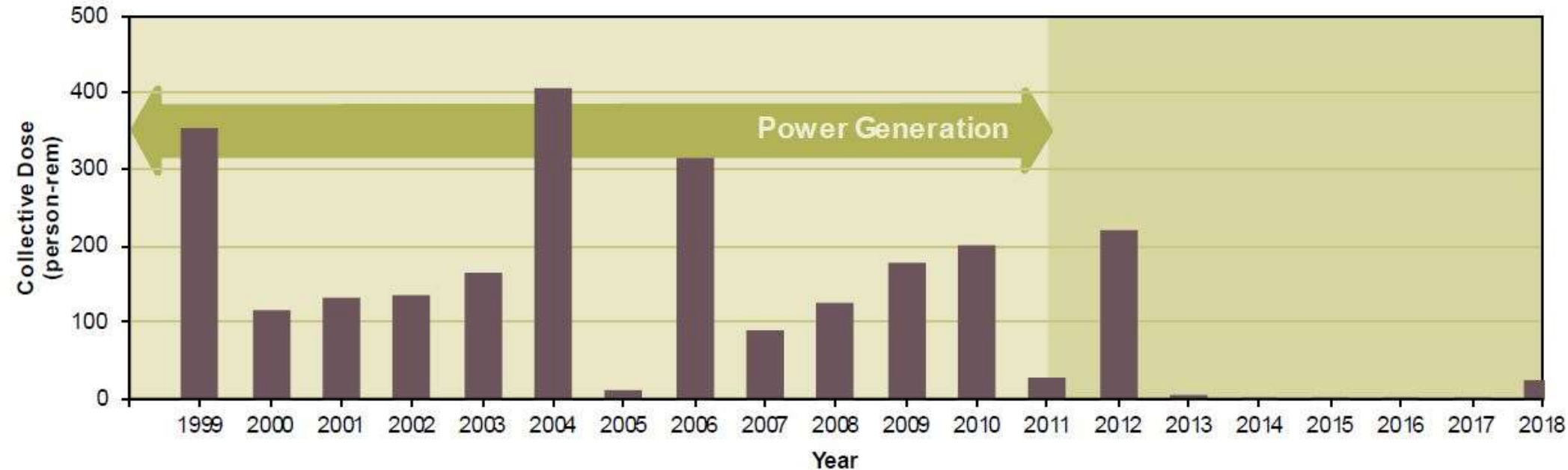
Rancho Seco



Rancho Seco located in interior California near Sacramento had one pressurized water reactor that was permanently shut down in June 1989.

The transfer of all spent fuel into onsite dry storage was completed in August 2002.

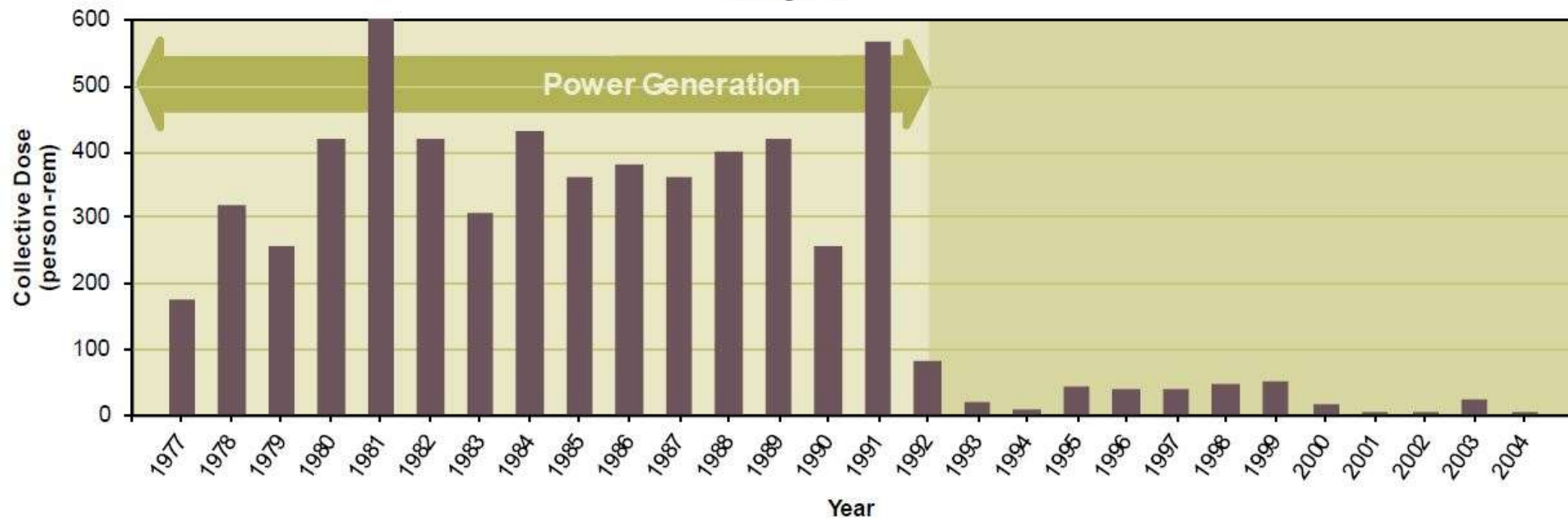
San Onofre 2 and 3



San Onofre Units 2 and 3 located on California's southern coast had two pressurized water reactors (Unit, another pressurized water reactor, shut down in 1992) that were permanently shut down on June 7, 2013.

The transfer of all spent fuel into onsite dry storage was completed in August 2020.

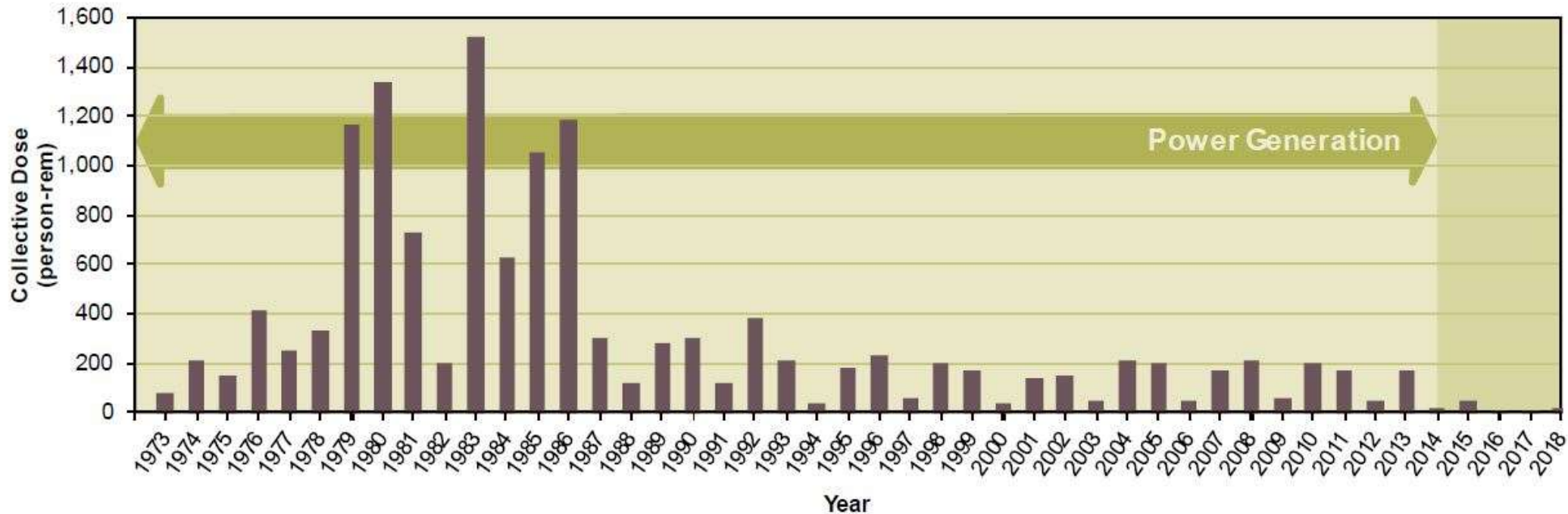
Trojan



Trojan located in interior Oregon had one pressurized water reactor that was permanently shut down in November 1992.

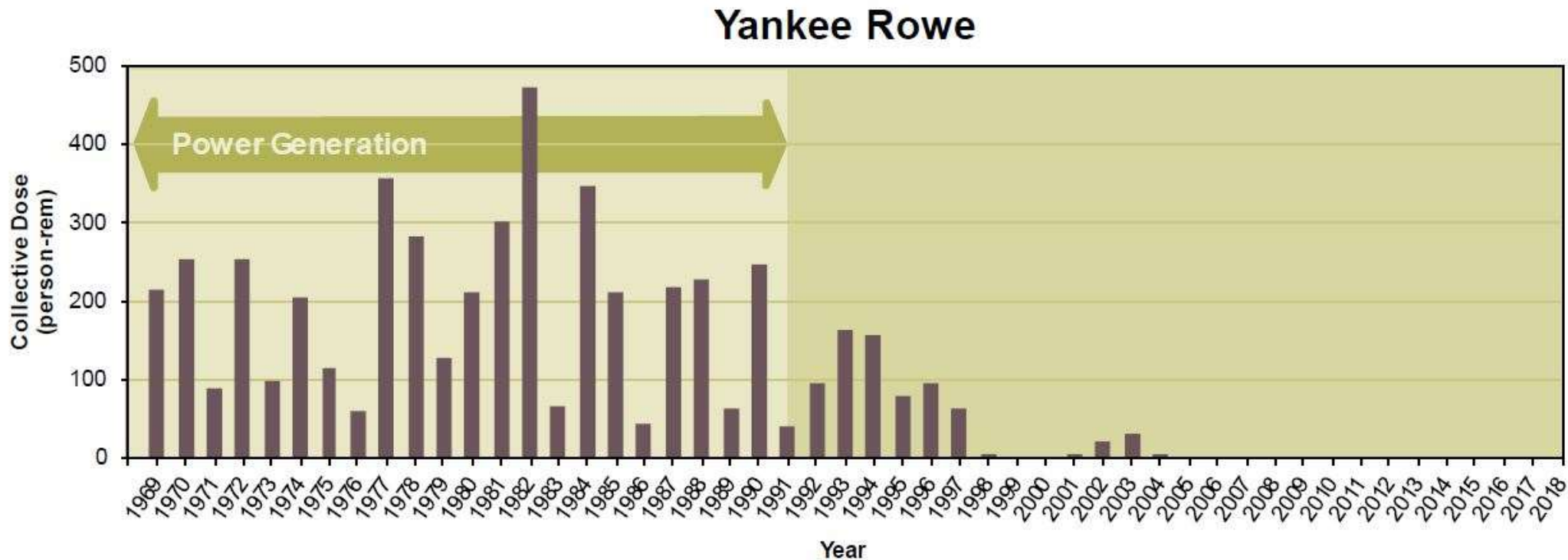
The transfer of all spent fuel into onsite dry storage was completed in August 2003.

Vermont Yankee



Vermont Yankee located in southern Vermont had one boiling water reactor that was shut down on December 29, 2014.

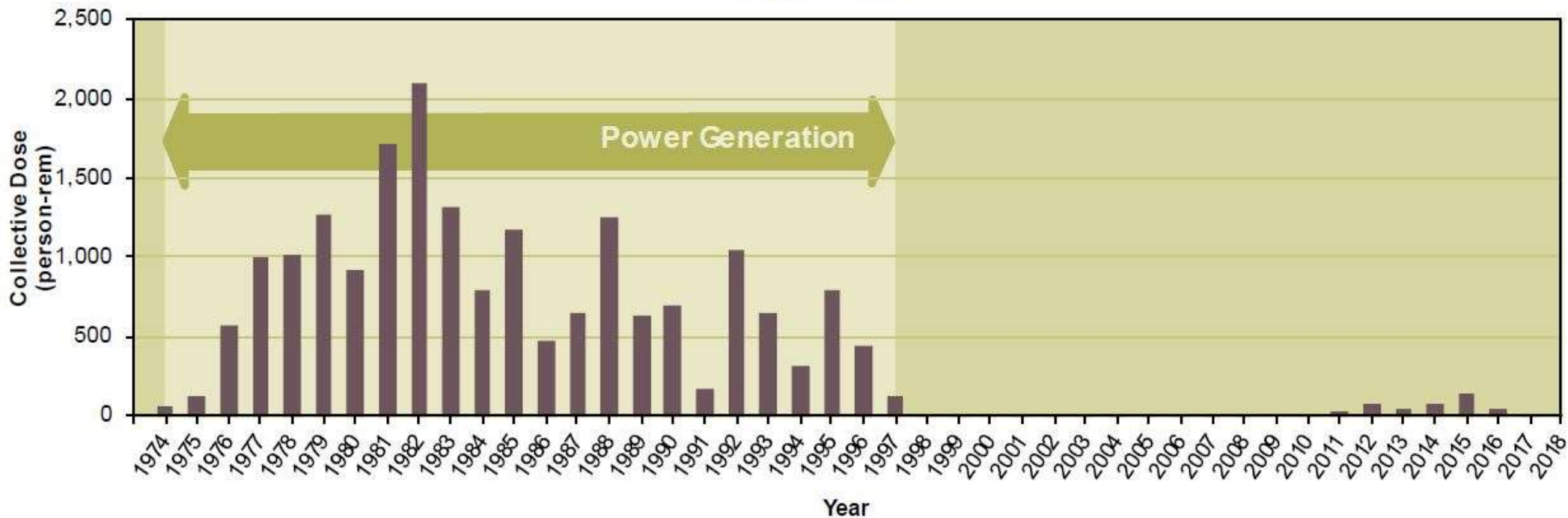
The transfer of all spent fuel into onsite dry storage was completed in August 2018.



Yankee Rowe located in northwestern Massachusetts had one pressurized water reactor that was permanently shut down in November 1992.

The transfer of all spent fuel into onsite dry storage was completed in May 2003.

Zion 1 and 2



Zion Units 1 and 2 located in northeastern Illinois had two pressurized water reactors that was permanently shut down on February 21, 1997, and September 19, 1996, respectively.

The transfer of all spent fuel into onsite dry storage was completed in January 2015.

The radiation exposures to workers at 16 nuclear plants that have permanently shut down consistently show significant decreases after permanent reactor shut down compared to exposures during operation.